Training Catalogue
29/05/2020

KAÏNA-COM
TRAINING CATALOGUE

Advanced Linux Programming

This hands-on course is a follow on course to the Linux systems administration course

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KLI003 – Advanced Linux Programming

Reference

KLI003

Experience

- ☐ Beginner
- ☒ Intermediate
- ☐ Advanced

Duration

Training Program:

- 5 days

Training Method

☐ I: i-learning, individual training (web-based training)

☒ V: v-learning, virtual class

☐ C: c-learning, classroom training

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LE CARRÉ HAUSSMANN II,
6 Allée de la Connaissance
77127 Lieusaint - France

Price

2.526,00 € HT

Prerequisite

C programming knowledge. An advantage to introduction To Linux or Linux Fundamentals or equivalent. Linux systems administration. Some basic experience in using Linux, Unix or another operating system.

Audience

Linux systems programmers. The course is intended for programmers who are familiar with the C programming language and at least one other operating system.

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KLI003 – Advanced Linux Programming, Continued

Objective

This hands-on course is a follow on course to the Linux systems administration course.
The course covers technical in-depth topics including system programming, file systems, signals, processes, pipes, threads, timers, input-output, sockets, the kernel and scripting.

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KLI003 – Advanced Linux Programming, Continued

Course Contents

Course Contents :

Table 1: KLI003 - Course Contents

Chapter	Description
Linux/Unix Overview	• History and philosophy of Unix/Linux and Open Source • System architecture: from user interface to hardware • Getting around: shell basics • Overview: strace-ing "Hello World"
System Programming	• Anatomy of a system call: uname() • /proc – your window to the kernel
File Systems	• Overview of common file systems: ext2/3, nfs, reiserfs, xfs, vfat • Kernel file system architecture, from block devices to files & directories • File related system calls: stat, access, open, close, read, write • Exercise • More file related system calls: readv, writev • Exercise
Using Signals	• Overview of signals • Typical usage • Gotcha's – traps and pitfalls • Exercise

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KLI003 – Advanced Linux Programming, Continued

Course Contents, continued

Chapter	Description
Processes	• What is a process • Process environment • Working with processes: fork, exec* and wait* • Exercise
Pipes and IPC - inter-process communication	• Pipe and dup2, popen and pclose system calls • FIFOs (named pipes) • Shared memory • Sockets • Semaphores • Exercise
Threads	• Time, gettimeofday system calls • Alarm, setitimer • Nanosleep • Exercise
Timers	• Using the Unix clock • Internal clocks
Socket programming	• TCP/IP overview • The socket API • Datagram v.s. connection-oriented sockets • Typical client/server examples

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KLI003 – Advanced Linux Programming, Continued

Course Contents, continued

Chapter	Description
I/O	• File locking with fcntl • Asynchronous I/O via select • Exercise
The kernel	• The kernel boot process • Building the kernel • An overview of module programming • Exercise
Scripting	• Overview • Variables • Functions • Examples • Exercise
The End	• Summary • Q&A • Evaluation